Work Order ID 112072

January-29-14 8:47:16 AM

112072

Item ID: D4634-5 **Accept** *N9000040100* **Setup Start** *NS1*

Revision ID:

Item Name: Aft, Center Ceiling Panel **Stop** *NS2*

Start Date: 30/01/2014 **Start Qty:** 1.00 *1*

Required Date: 24/02/2014 **Req'd Qty:** 1.00 *1*

Reference:

Cust Item ID:

Customer:

Approvals: **Process Plan:** MP **Date:** 14-01-29 **Tooling:** _____ **Date:** _____ **Run Start** *NR1*

QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____ **Stop** *NR2*

Draw Nbr	Revision Nbr
D4634	~~E~~ F 01

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
100	HAND FINISHING THERMOFORMING	0.00				x1	x0		DL 14/01/31 14/03/01
100									
Thermoform	**Memo**	0.00							
Thermoforming Machine	Cut Blanks								
105	Dry Material	0.00				x1	x1		DL 14/01/31 14/03/01
105									
HandThermo	**Memo**	0.00							
Hand Finishing Thermoforming	Dry Sheet as per QSI022 POLYCARBONATE								

Temp: 350°F

Time IN: 5:00 pm 14/01/30

Time OUT: 6:00 pm 14/01/31

245 deg. F
5:00 PM
6:00 AM

APR 0 1 2014

Per.....

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

DART AEROSPACE

QA Closed: Date: Work Order update only ☐

Work Order: _____

Part No. _____

NCR No. _____

DISPOSITION

Rework ☐
Scrap ☐
Use-as-is ☐
Suspected Unapproved ☐

AGAINST DEPARTMENT/PROCESS

Skid-tube ☐ Crosstube ☐ Water Jet ☐ Engineering ☐
Machining ☐ Small Fab ☐ Prod. Eng. Coor. ☐ Quality ☐
Thermoforming ☐ Finishing ☐ Rec/Store/Packaging ☐ Other ☐
Large Fab ☐ Composite ☐ Supplier ☐ ☐

Root Cause		Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Design	☐									
Doc/Data	☐									
Equip/Tooling	☐									
Handling/Pre	☐									
Material	☐									
Operator	☐									
Offset/Setup	☐									
Process	☐									
Supplier	☐									
Training	☐									
Transport	☐									
Unapproved	☐									

FAULT CATEGORY

Landing Gear

☐ Bending
☐ Centre Not Concentric
☐ Cracks
☐ Crimp/Kink/Ripple/Wave
☐ Cuffs
☐ Crushing
☐ Heat Treat
☐ Inspection Strip in Tube
☐ Marks/Chatter
☐ Turning Sequence
☐ Wave/Twist in Tube

General

☐ Bend
☐ BOM/Route
☐ Broken/Damage/Defect
☐ Burrs
☐ Contamination
☐ Countersink
☐ Cut Too Short
☐ Drawing
☐ Drill Holes
☐ Finish
☐ Fit/Function
☐ Folio/Program
☐ Grain
☐ Hardware
☐ Inspection Incomplete/Unqualified
☐ Instructions Incomplete/Unclear
☐ Misaligned/off center
☐ Mislabeled
☐ Misread
☐ Off-set
☐ Out of Calibration
☐ Out of Sequence
☐ Outside Dimensions
☐ Over/Under tolerance
☐ Part Incorrect
☐ Part Lost/Missing
☐ Part Moved
☐ Positioned Wrong
☐ Power Loss/Surge
☐ Pressure/Forced
☐ Set-up
☐ Temperature/Cure
☐ Weld
☐ Wrong Stock Pulled
☐ Other

_____
_____
_____

Work Order ID 112072

January-29-14 8:47:16 AM

112072

Item ID: D4634-5 **Accept** *N9000040100* **Setup Start** *NS1*

Revision ID:

Item Name: Aft, Center Ceiling Panel **Stop** *NS2*

Start Date: 30/01/2014 **Start Qty:** 1.00 *1*

Required Date: 24/02/2014 **Req'd Qty:** 1.00 *1*

Reference:

Cust Item ID:

Customer:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Run Start *NR1*

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
110		0.00							
110	THERMOFORMING MACHINE				x1	x1			DL
Thermoform	**Memo**	0.00							14/01/31
Thermoforming Machine	Thermoform as per Dwg. D4634-5 and Folio FTA146								14/03/01
	Dwg. Rev. K E DL								
	Folio Rev. D								
	Visually inspect for proper formation and texture								
130		0.00							
130	HAND FINISHING THERMOFORMING					x1			14/02/26
Thermoform	**Memo**	0.00							
Thermoforming Machine	Trim to Finished Dimensions								
						x1			14/04/03
140	QC6- Inspect dimensions to drawing	0.00 SH							
140	Dimensional Inspection					1			
QC	**Memo**	0.00 14/4/7							
Quality Control	Fill out Inspection Sheet Rev A								

DQA: _____ Date: _____

DART AEROSPACE

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: Date: Work Order update only ☐

Work Order: 112072

Part No. D4634-5

NCR No. _____

DISPOSITION

Rework	☐
Scrap	X
Use-as-is	☐
Suspected Unapproved	☐

AGAINST DEPARTMENT/PROCESS

Skid-tube	☐	Crosstube	☐	Water Jet	☐
Machining	☐	Small Fab	☐	Prod. Eng. Coor.	☐
Thermoforming	X	Finishing	☐	Rec/Store/Packaging	☐
Large Fab	☐	Composite	☐	Supplier	☐

Engineering	☐
Quality	☐
Other	☐
	☐

Root Cause		Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Design		14/03/10	B 130	N 4	Pannel ~~SCRAPED~~ SCRAPED 2.00" hole cut in wrong location. Rc. operator "missed" his locator hole and Drilled 2.00" hole. operator used a hole saw ~~with~~ with a 1/4" Drill Bit ~~and~~ and trying to work with in a Ø.200" pre Drilled hole. Better Tooling Required!	LW 14/03/10	Scrap + Destroy Panel. No Replace.	BB 14/03/10	SMB 14/4/7	DAS 16 9-89 14/03/10
Doc/Data							ADD note on w/o @ step B0 ~~130~~ to pre Drill all holes to 0.250" for hole SAWS	DK. 14/04/21		
Equip/Tooling							Remove all 1/4" Drills from hole SAWS and ADD 1/4" SOLID Pins as locator for Drilling 2.00" holes	DE 14/04/21		
Handling/Pre										
Material										
Operator										
Offset/Setup										
Process	X									
Supplier										
Training										
Transport										
Unapproved										

FAULT CATEGORY

Landing Gear

☐	Bending
☐	Centre Not Concentric
☐	Cracks
☐	Crimp/Kink/Ripple/Wave
☐	Cuffs
☐	Crushing
☐	Heat Treat
☐	Inspection Strip in Tube
☐	Marks/Chatter
☐	Turning Sequence
☐	Wave/Twist in Tube

General

☐	Bend
☐	BOM/Route
☐	Broken/Damage/Defect
☐	Burrs
☐	Contamination
☐	Countersink
☐	Cut Too Short
☐	Drawing
☐	Drill Holes
☐	Finish
☐	Fit/Function

☐	Folio/Program
☐	Grain
☐	Hardware
☐	Inspection Incomplete/Unqualified
☐	Instructions Incomplete/Unclear
X	Misaligned/off center Drill hole
☐	Mislabeled
☐	Misread
☐	Off-set
☐	Out of Calibration
☐	Out of Sequence

☐	Outside Dimensions
☐	Over/Under tolerance
☐	Part Incorrect
☐	Part Lost/Missing
☐	Part Moved
☐	Positioned Wrong
☐	Power Loss/Surge

☐	Pressure/Forced
☐	Set-up
☐	Temperature/Cure
☐	Weld
☐	Wrong Stock Pulled
☐	Other

Item ID: D4634-5 **Accept** *N9000040100* **Setup Start** *NS1*
Revision ID: **Stop** *NS2*
Item Name: Aft, Center Ceiling Panel
Start Date: 30/01/2014 **Start Qty:** 1.00 *1*
Required Date: 24/02/2014 **Req'd Qty:** 1.00 *1*
Reference:
Cust Item ID:
Customer:

Run Start *NR1*
Stop *NR2*

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____
QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150	QC5- Inspect part completeness to step on W/O	0.00							
150									
QC	**Memo**	0.00 SMB							
Quality Control	N/A 14/4/7								
160		0.00							
160	Packaging								
Packaging	**Memo** MF	0.00				1	SMB 14/04/07		
Packaging									
170	QC21- Final Inspection - Work Order Release	0.00							
170									
QC	**Memo**	0.00				MLS 14-04-09			
Quality Control									

MF 14-4-8

DQA: _____ Date: _____

DART AEROSPACE

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: Date: Work Order update only ☐

Work Order: _____

Part No. _____

NCR No. _____

DISPOSITION

Rework ☐
Scrap ☐
Use-as-is ☐
Suspected Unapproved ☐

AGAINST DEPARTMENT/PROCESS

Skid-tube ☐ Crosstube ☐ Water Jet ☐ Engineering ☐
Machining ☐ Small Fab ☐ Prod. Eng. Coor. ☐ Quality ☐
Thermoforming ☐ Finishing ☐ Rec/Store/Packaging ☐ Other ☐
Large Fab ☐ Composite ☐ Supplier ☐ ☐

Root Cause		Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Design	☐									
Doc/Data	☐									
Equip/Tooling	☐									
Handling/Pre	☐									
Material	☐									
Operator	☐									
Offset/Setup	☐									
Process	☐									
Supplier	☐									
Training	☐									
Transport	☐									
Unapproved	☐									

FAULT CATEGORY

Landing Gear

☐ Bending
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☐ Drill Holes
☐ Finish
☐ Fit/Function
☐ Folio/Program
☐ Grain
☐ Hardware
☐ Inspection Incomplete/Unqualified
☐ Instructions Incomplete/Unclear
☐ Misaligned/off center
☐ Mislabeled
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☐ Off-set
☐ Out of Calibration
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☐ Part Incorrect
☐ Part Lost/Missing
☐ Part Moved
☐ Positioned Wrong
☐ Power Loss/Surge
☐ Pressure/Forced
☐ Set-up
☐ Temperature/Cure
☐ Weld
☐ Wrong Stock Pulled
☐ Other

_____
_____
_____

Picklist Print

January-29-14 8:47:19 AM

Work Order ID: 112072 *112072*

Parent Item: D4634-5 *D4634-5*

Parent Item Name: Aft, Center Ceiling Panel

Start Date: 30/01/2014 **Required Date:** 24/02/2014

Start Qty: 1.00 **Required Qty:** 1.00

Comments: IPP Rev. A New Issue 12/05/07 DL VERIFIED BY:JLM IPP Rev. B Dwg. Update 13/07/09 DL verf:DD IPP Rev C Dwg. Update, Material Change 13/12/18 DL IPP Rev. D 14/01/20 Dwg Update DL

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
MLEXS.093-F6006-07		Purchased	No			100	sf	1,385.760	17.33	18			

MLEXS.093-F6006-07

GE PLASTICS LEXAN SHEET

**

DL 14/02/03

Location	Loc Qty	Loc Code	
MAT023	1385.76		
114459	229.26		
123105	38		
124501	1118.5		18 sq ft

178668

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: Date: Work Order update only ☐

Work Order: _____

Part No. _____

NCR No. _____

DISPOSITION

Rework ☐
Scrap ☐
Use-as-is ☐
Suspected Unapproved ☐

AGAINST DEPARTMENT/PROCESS

Skid-tube ☐ Crosstube ☐ Water Jet ☐ Engineering ☐
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Thermoforming ☐ Finishing ☐ Rec/Store/Packaging ☐ Other ☐
Large Fab ☐ Composite ☐ Supplier ☐ ☐

Root Cause		Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Design	☐									
Doc/Data	☐									
Equip/Tooling	☐									
Handling/Pre	☐									
Material	☐									
Operator	☐									
Offset/Setup	☐									
Process	☐									
Supplier	☐									
Training	☐									
Transport	☐									
Unapproved	☐									

FAULT CATEGORY

Landing Gear

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☐ Countersink
☐ Cut Too Short
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☐ Finish
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☐ Hardware
☐ Inspection Incomplete/Unqualified
☐ Instructions Incomplete/Unclear
☐ Misaligned/off center
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☐ Out of Sequence
☐ Outside Dimensions
☐ Over/Under tolerance
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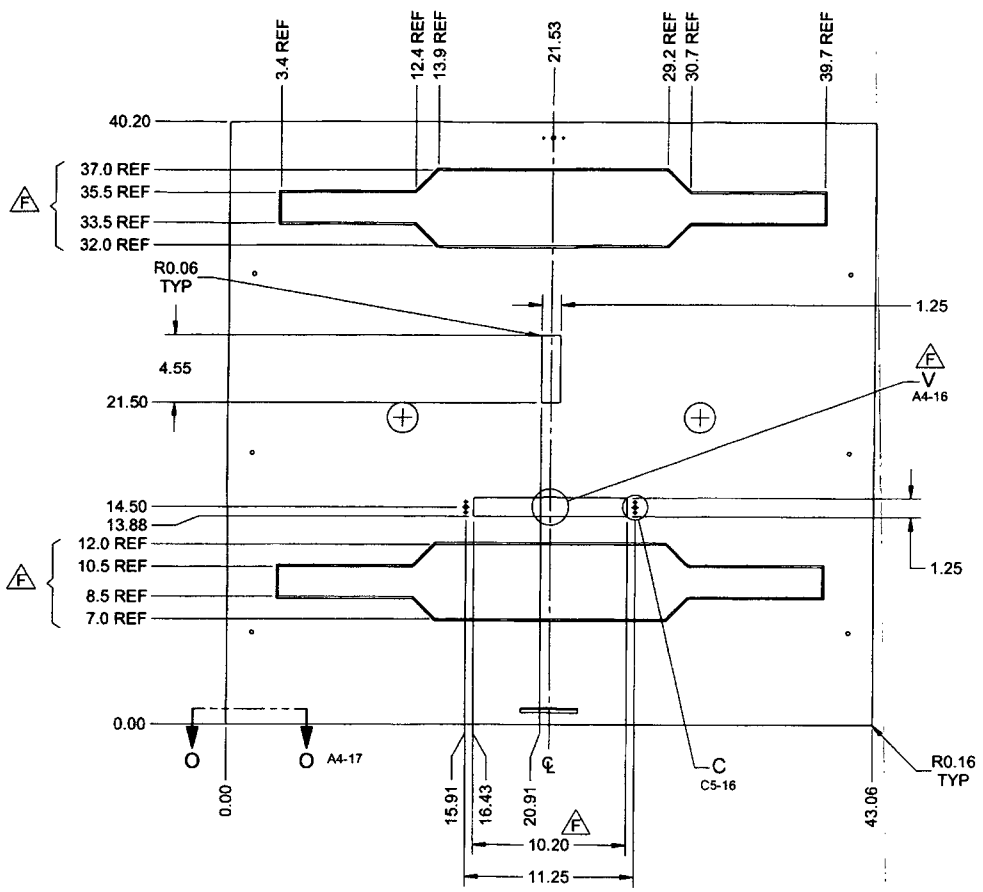
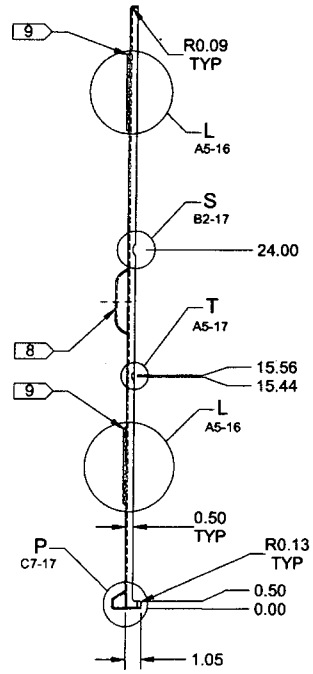
☐ Part Lost/Missing
☐ Part Moved
☐ Positioned Wrong
☐ Power Loss/Surge
☐ Pressure/Forced
☐ Set-up
☐ Temperature/Cure
☐ Weld
☐ Wrong Stock Pulled
☐ Other

_____
_____
_____





112072 MLJ
14-01-29

NOTES:
1) MATERIAL: F6006 SUEDE/POLISHED GY5B133 LIGHT GREY LEXAN SHEET 0.093 THICK
(REF DART SPEC MLEXS.093-F6006-07)
2) FINISH: N/A
3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
4) UNITS: INCHES UNLESS OTHERWISE NOTED
5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
6) IDENTIFICATION: N/A
7) WEIGHT: 7.39 lbs
8) TEXTURE ON THIS SIDE
9) 0.14 RADIUS NOT SHOWN FOR CLARITY
10) DRILL & TRIM D4634-5 PER TOOL DT9838
11) THERMOFORM PER QSI 022 USING DT9846 TOOL
MIN. THICKNESS AFTER FORMING:
EDGES = 0.060
ELSEWHERE = 0.070
12) LOCATE ϕ2.030 AT CENTER OF PROTRUDED SURFACE AS SHOWN

D4634-5 AFT, CENTER CEILING PANEL

RELEASED
2014 FEB 25

DESIGN	RF	**DART AEROSPACE LTD** HAWKESBURY, ONTARIO, CANADA
DRAWN	RF	
CHECKED	DC	DRAWING NO. D4634 REV. F
MFG. APPR.	DC	SHEET 14 OF 17
APPROVED		TITLE CENTER CEILING PANELS SCALE NTS
DE APPR.		
DATE	14.02.03	

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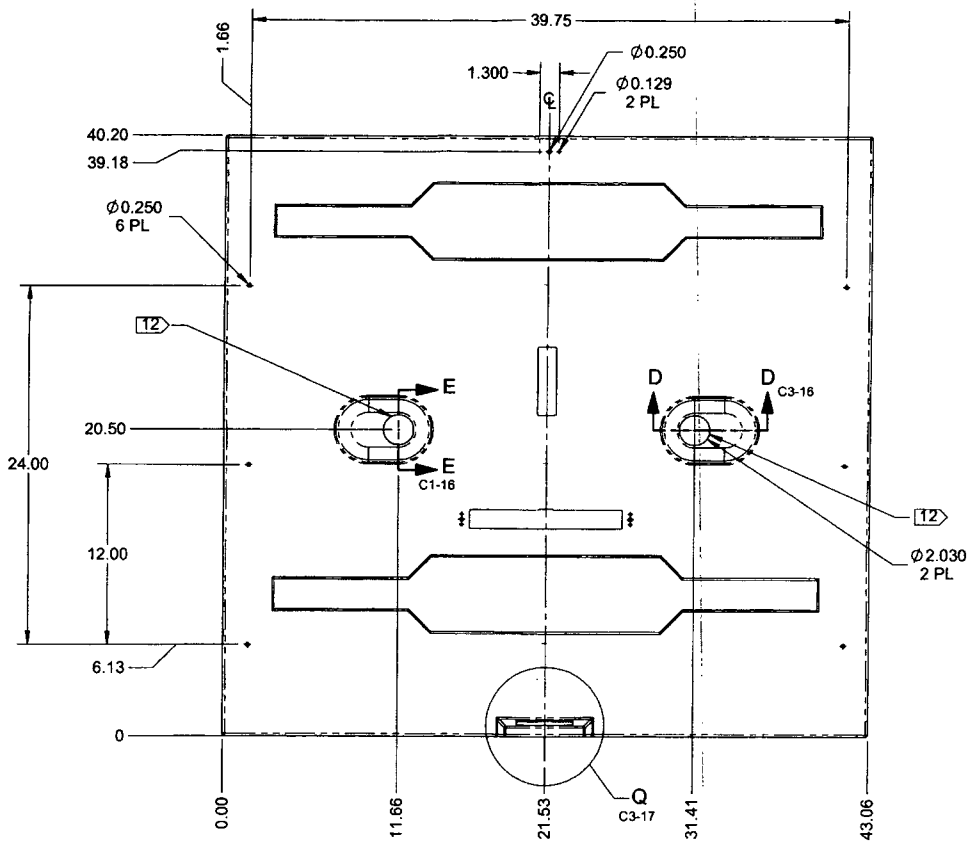

D4634-5 AFT, CENTER CEILING PANEL
AUXILIARY VIEW

RELEASED
2014 FEB 25

DESIGN	RF	**DART AEROSPACE LTD** HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED		DRAWING NO. D4634	REV. F
MFG. APPR.			SHEET 15 OF 17
APPROVED		TITLE CENTER CEILING PANELS	SCALE NTS
DE APPR.			
DATE 14.02.03			

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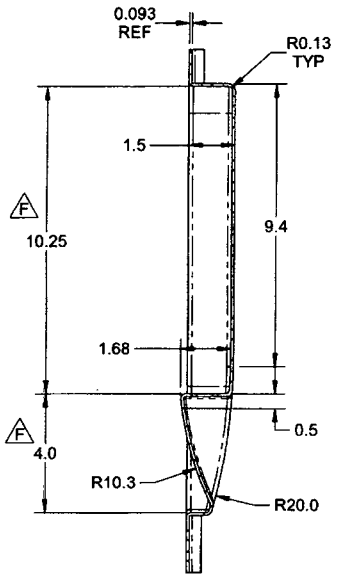
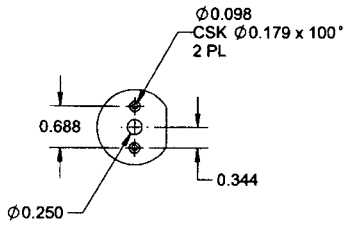
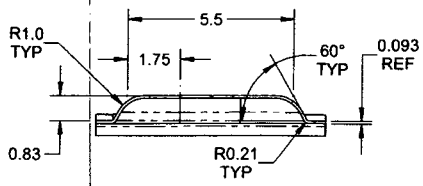


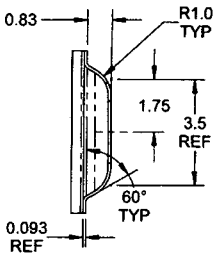
SECTION G-G C5-11
SCALE 4X



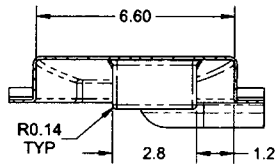
DETAIL C B7-10 B4-12 B4-14
SCALE 4X



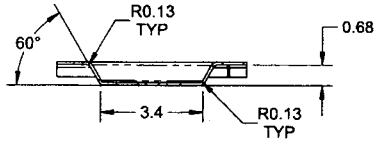
SECTION D-D B6-11 C4-13 C4-15
SCALE 2X



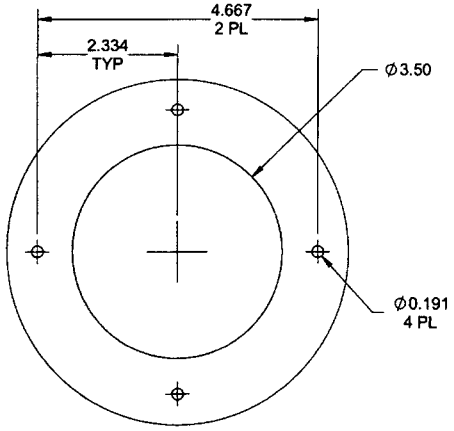
SECTION E-E B5-11 C4-13 C5-15
SCALE 4X



SECTION H-H C5-11
SCALE 2X



SECTION J-J B6-13
SCALE 2X



DETAIL B B7-10
SCALE 4X
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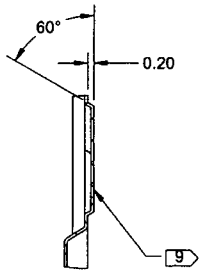
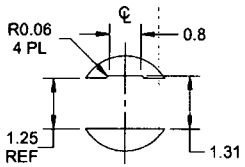


DETAIL L B2-13 C2-13 B2-14 C2-14
SCALE 4X
TYP



Ⓕ **DETAIL V** C4-10 B4-12 C4-14
SCALE 2X
SIMILAR

RELEASED
2014 FEB 25

DESIGN	RF	**DART AEROSPACE LTD** HAWKESBURY, ONTARIO, CANADA
DRAWN	RF	
CHECKED	DC	DRAWING NO. D4634 REV. F
MFG. APPR.	DC	SHEET 16 OF 17
APPROVED	[illegible]	TITLE CENTER CEILING PANELS SCALE NTS
DE APPR.	[illegible]	
DATE	14.02.03	

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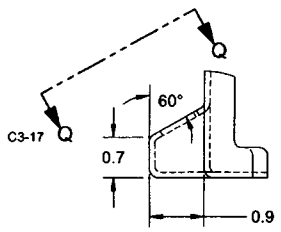
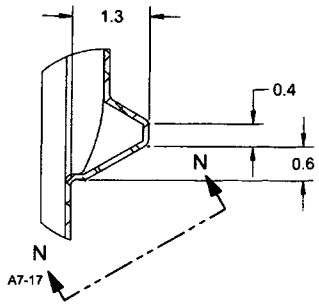
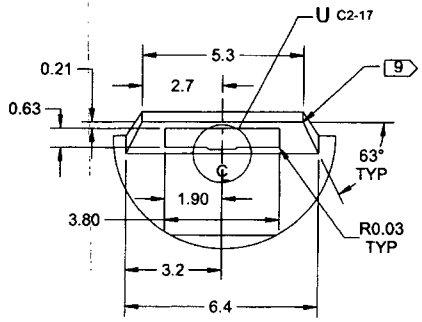


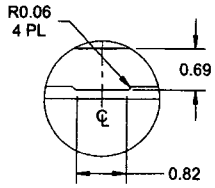
DETAIL P B3-14
SCALE 2X



DETAIL M C3-10
SCALE 2X



DETAIL Q B4-15 D8-17
SCALE 0.5X



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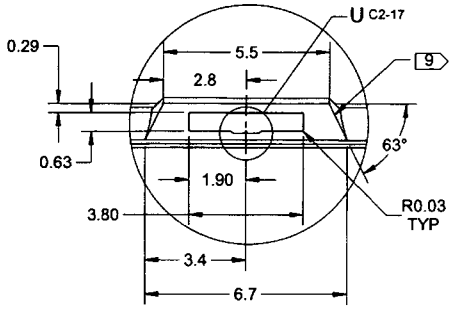

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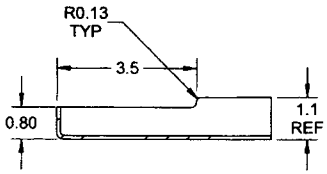
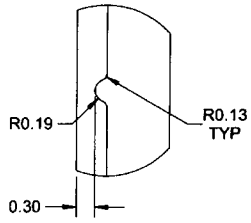
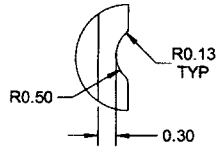


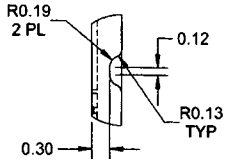
SECTION O-O B6-14
SCALE 1.3X



DETAIL R B3-10 C3-10 B2-12
SCALE 4X



DETAIL S B3-10 C2-12
SCALE 4X



DETAIL T C2-14
SCALE 4X

RELEASED
2014 FEB 25

DESIGN	RF	**DART AEROSPACE LTD** HAWKESBURY, ONTARIO, CANADA
DRAWN	RF	
CHECKED	BC	DRAWING NO. D4634 REV. F
MFG. APPR.		SHEET 17 OF 17
APPROVED		TITLE CENTER CEILING PANELS SCALE NTS
DE APPR.		
DATE	14.02.03	

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DART AEROSPACE LTD

Description:	Aft, Center Ceiling Panel	Work Order:	112072
Inspection Drawing:	4634-5	Rev: F	Part Number: DH634-5

INSPECTION SHEET

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
4.55	+/-0.030	4.54	✓		Vern	SFAB -08
21.50	+/-0.030	21.50	✓		MT	SFAB-21
1.25	+/-0.030	1.220	✓		Vern	SFAB-08
14.50	+/-0.030	14.50	✓		MT	SFAB-21
1.25	+/-0.030	1.220	✓		Vern	SFAB-08
10.05	+/-0.030	10.05	✓		MT	SFAB-21
11.25	+/-0.030	11.25	✓		↓	↓
21.53	+/-0.030	21.53	✓			
12.00	+/-0.030	12.00	✓			
24.00	+/-0.030	24.00	✓			
20.50	+/-0.030	20.50	✓			
39.75	+/-0.030	39.75	✓		↓	↓
11.66	+/-0.030	11.66	✓		MT	SFAB-21
31.41	+/-0.030	31.41	✓		MT	SFAB-21
1.30	+/-0.030	1.30	✓		Vern	SFAB-08
Ø0.250	+0.005 -0.001	Ø0.250	✓		Vern	↓
Ø0.129	+0.005 -0.001	Ø0.129	✓		↓	↓
Ø2.030	+/-0.010	Ø2.030	✓		↓	↓
Ø0.098	+0.004 -0.001	Ø0.098	✓		↓	↓
0.688	+/-0.010	0.687	✓		↓	↓
3.80	+/-0.030	3.80	✓		↓	↓
0.63	+/-0.030	0.63	✓		Vern	SFAB-08

Measured by:	Checked By:	QC inspector:	Engineering Approval (*if necessary*):
Date 14/04/07	Date 14/04/21	Date	Date